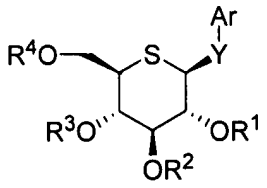
AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

LISTING OF CLAIMS:

1. **(previously presented):** A 5-thio-β-D-glucopyranoside compound of the following formula or a pharmaceutically acceptable salt thereof or a hydrate thereof:



(i)

wherein

Y represents -O- or -NH-,

R^1, R^2, R^3 and R^4, which may be the same or different, each represent a hydrogen atom, a C_{2-10} acyl group, a C_{7-10} aralkyl group, a C_{2-6} alkoxycarbonyl group, a C_{1-6} alkoxy-C_{2-10} acyl group or a C_{1-6} alkoxy-C_{2-6} alkoxycarbonyl group,

Ar represents an aryl group substituted with -X-A^1, in which the aryl group may further be substituted with the same or different 1 to 4 substituents selected from:

a halogen atom;

a hydroxyl group;

a C_{1-6} alkyl group which may be substituted with 1 to 4 substituents selected from the group consisting of a halogen atom and a hydroxyl group;

a group represented by the formula:

$-(CH_2)m-Q$

wherein m represents an integer of 0 to 4 and Q represents a formyl group, an amino group, a nitro group, a cyano group, a carboxyl group, a sulfonic acid group, a C_{1-6} alkoxy group which may be substituted with 1 to 4 halogen atoms, a C_{1-6} alkoxy-C_{1-6} alkoxy group, a C_{2-10} acyloxy group, a C_{2-10} acyl group, a C_{2-6} alkoxycarbonyl group, a C_{1-6} alkylthio group, a C_{1-6} alkylsulfinyl group, a C_{1-6} alkylsulfonyl group, -NHC(=O)H, a C_{2-10} acylamino group, a C_{1-6} alkylsulfonylamino group, a C_{1-6} alkylamino group, an N,N-di(C_{1-6} alkyl)amino group, a carbamoyl group, an N-(C_{1-6} alkyl)aminocarbonyl group, or an N,N-di(C_{1-6} alkyl)aminocarbonyl group; or

a C_{3-7} cycloalkyl group, a C_{3-7} cycloalkyloxy group, an aryl group, a C_{7-10} aralkyl group, an aryloxy group, a C_{7-10} aralkyloxy group, a C_{7-10} aralkylamino group, a heteroaryl group, or a 4- to 6-membered heterocycloalkyl group, provided that each of these groups may be substituted with 1 to 4 substituents selected from the group consisting of a halogen atom, a hydroxyl group, a C_{1-6} alkyl group and a C_{1-6} alkoxy group,

X represents -(CH_2)n-, -CO(CH_2)n-, -CH(OH)(CH_2)n-, -O-(CH_2)n-, -CONH(CH_2)n-, -NHCO(CH_2)n-, wherein n represents an integer of 0 to 3, -COCH=CH-, -S- or -NH-, and

A^1 represents an aryl group, a heteroaryl group or a 4- to 6-membered heterocycloalkyl group, each of which may be substituted with the same or different 1 to 4 substituents selected from:

a halogen atom;

a hydroxyl group;

a C_{1-6} alkyl group which may be substituted with 1 to 4 substituents selected from the group consisting of a halogen atom and a hydroxyl group;

a group represented by the formula:

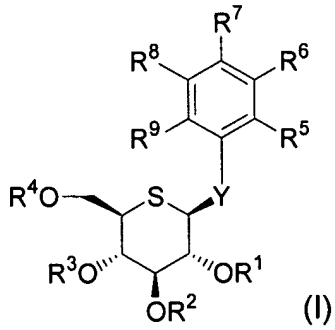
-(CH_2)m'-Q'

wherein m' represents an integer of 0 to 4 and Q' represents a formyl group, an amino group, a nitro group, a cyano group, a carboxyl group, a sulfonic acid group, a C_{1-6} alkoxy group which

may be substituted with 1 to 4 substituents selected from the group consisting of a halogen atom and a hydroxyl group, a C_{1-6} alkoxy-C_{1-6} alkoxy group, a C_{2-10} acyloxy group, a C_{2-10} acyl group, a C_{2-6} alkoxycarbonyl group, a C_{1-6} alkylthio group, a C_{1-6} alkylsulfinyl group, a C_{1-6} alkylsulfonyl group, -NHC(=O)H, a C_{2-10} acylamino group, a C_{1-6} alkylsulfonylamino group, a C_{1-6} alkylamino group, an N,N-di(C_{1-6} alkyl)amino group, a carbamoyl group, an N-(C_{1-6} alkyl)aminocarbonyl group, or an N,N-di(C_{1-6} alkyl)aminocarbonyl group; or

a C_{3-7} cycloalkyl group, a C_{3-7} cycloalkyloxy group, an aryl group, a C_{7-10} aralkyl group, an aryloxy group, a C_{7-10} aralkyloxy group, a C_{7-10} aralkylamino group, a heteroaryl group, or a 4- to 6-membered heterocycloalkyl group, provided that each of these groups may be substituted with 1 to 4 substituents selected from the group consisting of a halogen atom, a hydroxyl group, a C_{1-6} alkyl group and a C_{1-6} alkoxy group.

2. **(previously presented):** A 5-thio-β-D-glucopyranoside compound of the following formula or a pharmaceutically acceptable salt thereof or a hydrate thereof:



(I)

wherein

Y represents -O- or -NH-,

R^1, R^2, R^3 and R^4, which may be the same or different, each represent a hydrogen atom, a C_{2-10} acyl group, a C_{7-10} aralkyl group, a C_{2-6} alkoxycarbonyl group, a C_{1-6} alkoxy-C_{2-10} acyl group or a C_{1-6} alkoxy-C_{2-6} alkoxycarbonyl group, and

at least one of R^5, R^6, R^7, R^8 and R^9 represents -X-A^1 and the other, which may be the same or different, each represent:

a hydrogen atom;

a halogen atom;

a hydroxyl group;

a C_{1-6} alkyl group which may be substituted with 1 to 4 substituents selected from the group consisting of a halogen atom and a hydroxyl group;

a group represented by the formula:

$-(CH_2)m-Q$

wherein m represents an integer of 0 to 4 and Q represents a formyl group, an amino group, a nitro group, a cyano group, a carboxyl group, a sulfonic acid group, a C_{1-6} alkoxy group which may be substituted with 1 to 4 halogen atoms, a C_{1-6} alkoxy-C_{1-6} alkoxy group, a C_{2-10} acyloxy group, a C_{2-10} acyl group, a C_{2-6} alkoxycarbonyl group, a C_{1-6} alkylthio group, a C_{1-6} alkylsulfinyl group, a C_{1-6} alkylsulfonyl group, -NHC(=O)H, a C_{2-10} acylamino group, a C_{1-6} alkylsulfonylamino group, a C_{1-6} alkylamino group, an N,N-di(C_{1-6} alkyl)amino group, a carbamoyl group, an N-(C_{1-6} alkyl)aminocarbonyl group, or an N,N-di(C_{1-6} alkyl)aminocarbonyl group; or

a C_{3-7} cycloalkyl group, a C_{3-7} cycloalkyloxy group, an aryl group, a C_{7-10} aralkyl group, an aryloxy group, a C_{7-10} aralkyloxy group, a C_{7-10} aralkylamino group, a heteroaryl group, or a 4- to 6-membered heterocycloalkyl group, provided that each of these groups may be substituted with 1 to 4 substituents selected from the group consisting of a halogen atom, a hydroxyl group, a C_{1-6} alkyl group and a C_{1-6} alkoxy group,

X represents $-(CH_2)n-$, $-CO(CH_2)n-$, $-CH(OH)(CH_2)n-$, $-O-(CH_2)n-$, $-CONH(CH_2)n-$, $-NHCO(CH_2)n-$, wherein n represents an integer of 0 to 3, -COCH=CH-, -S- or -NH-, and

A^1 represents an aryl group, a heteroaryl group or a 4- to 6-membered heterocycloalkyl group, each of which may be substituted with the same or different 1 to 4 substituents selected from:

a halogen atom;

a hydroxyl group;

a C_{1-6} alkyl group which may be substituted with 1 to 4 substituents selected from the group consisting of a halogen atom and a hydroxyl group;

a group represented by the formula:

$-(CH_2)m'-Q'$

wherein m' represents an integer of 0 to 4 and Q' represents a formyl group, an amino group, a nitro group, a cyano group, a carboxyl group, a sulfonic acid group, a C_{1-6} alkoxy group which may be substituted with 1 to 4 substituents selected from the group consisting of a halogen atom and a hydroxyl group, a C_{1-6} alkoxy-C_{1-6} alkoxy group, a C_{2-10} acyloxy group, a C_{2-10} acyl group, a C_{2-6} alkoxycarbonyl group, a C_{1-6} alkylthio group, a C_{1-6} alkylsulfinyl group, a C_{1-6} alkylsulfonyl group, -NHC(=O)H, a C_{2-10} acylamino group, a C_{1-6} alkylsulfonylamino group, a C_{1-6} alkylamino group, an N,N-di(C_{1-6} alkyl)amino group, a carbamoyl group, an N-(C_{1-6} alkyl)aminocarbonyl group, or an N,N-di(C_{1-6} alkyl)aminocarbonyl group; or

a C_{3-7} cycloalkyl group, a C_{3-7} cycloalkyloxy group, an aryl group, a C_{7-10} aralkyl group, an aryloxy group, a C_{7-10} aralkyloxy group, a C_{7-10} aralkylamino group, a heteroaryl group, or a 4- to 6-membered heterocycloalkyl group, provided that each of these groups may be substituted with 1 to 4 substituents selected from the group consisting of a halogen atom, a hydroxyl group, a C_{1-6} alkyl group and a C_{1-6} alkoxy group.

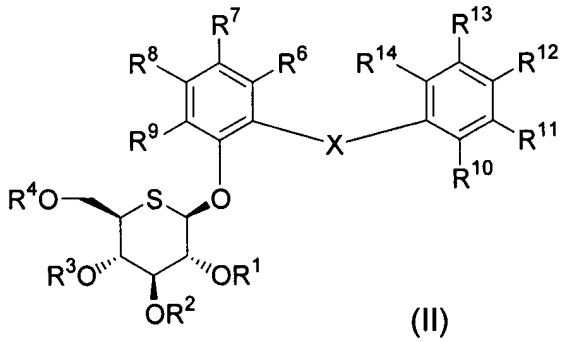
3. (original): The 5-thio-β-D-glucopyranoside compound according to claim 2, wherein Y is -O-, or a pharmaceutically acceptable salt thereof or a hydrate thereof.

4. (previously presented): The 5-thio-β-D-glucopyranoside compound according to claim 2, wherein R^5 is -X-A^1, or a pharmaceutically acceptable salt thereof or a hydrate thereof.

5. (previously presented): The 5-thio-β-D-glucopyranoside compound according to claim 4, wherein X is -(CH_2)n-, wherein n represents an integer of 0 to 3, or a pharmaceutically acceptable salt thereof or a hydrate thereof.

6. (previously presented): The 5-thio-β-D-glucopyranoside compound according to claim 4, wherein X is -$CO(CH_2)$n-, wherein n represents an integer of 0 to 3, or a pharmaceutically acceptable salt thereof or a hydrate thereof.

7. (previously presented): A 5-thio-β-D-glucopyranoside compound of the following formula or a pharmaceutically acceptable salt thereof or a hydrate thereof:



(II)

wherein

X represents -(CH_2)n-, -$CO(CH_2)$n-, -$CH(OH)(CH_2)$n-, -O-(CH_2)n-, -$CONH(CH_2)$n-, -$NHCO(CH_2)$n-, wherein n represents an integer of 0 to 3, -COCH=CH-, -S- or -NH-,

R^1, R^2, R^3 and R^4, which may be the same or different, each represent a hydrogen atom, a C_{2-10} acyl group, a C_{7-10} aralkyl group, a C_{2-6} alkoxycarbonyl group, a C_{1-6} alkoxy-C_{2-10} acyl group or a C_{1-6} alkoxy-C_{2-6} alkoxycarbonyl group,

R^6, R^7, R^8 and R^9, which may be the same or different, each represent:

a hydrogen atom;

a halogen atom;

a hydroxyl group;

a C_{1-6} alkyl group which may be substituted with 1 to 4 substituents selected from the group consisting of a halogen atom and a hydroxyl group;

a group represented by the formula:

$$-(CH_2)m-Q$$

wherein m represents an integer of 0 to 4 and Q represents a formyl group, an amino group, a nitro group, a cyano group, a carboxyl group, a sulfonic acid group, a C_{1-6} alkoxy group which may be substituted with 1 to 4 halogen atoms, a C_{1-6} alkoxy-C_{1-6} alkoxy group, a C_{2-10} acyloxy group, a C_{2-10} acyl group, a C_{2-6} alkoxycarbonyl group, a C_{1-6} alkylthio group, a C_{1-6} alkylsulfinyl group, a C_{1-6} alkylsulfonyl group, -NHC(=O)H, a C_{2-10} acylamino group, a C_{1-6} alkylsulfonylamino group, a C_{1-6} alkylamino group, an N,N-di(C_{1-6} alkyl)amino group, a carbamoyl group, an N-(C_{1-6} alkyl)aminocarbonyl group, or an N,N-di(C_{1-6} alkyl)aminocarbonyl group; or

a C_{3-7} cycloalkyl group, a C_{3-7} cycloalkyloxy group, an aryl group, a C_{7-10} aralkyl group, an aryloxy group, a C_{7-10} aralkyloxy group, a C_{7-10} aralkylamino group, a heteroaryl group, or a 4- to 6-membered heterocycloalkyl group, provided that each of these groups may be substituted with 1 to 4 substituents selected from the group consisting of a halogen atom, a hydroxyl group, a C_{1-6} alkyl group and a C_{1-6} alkoxy group, and

R^{10}, R^{11}, R^{12}, R^{13} and R^{14}, which may be the same or different, each represent:

a hydrogen atom;

a halogen atom;

a hydroxyl group;

a C_{1-6} alkyl group which may be substituted with 1 to 4 substituents selected from the group consisting of a halogen atom and a hydroxyl group;

a group represented by the formula:

$-(CH_2)m'-Q'$

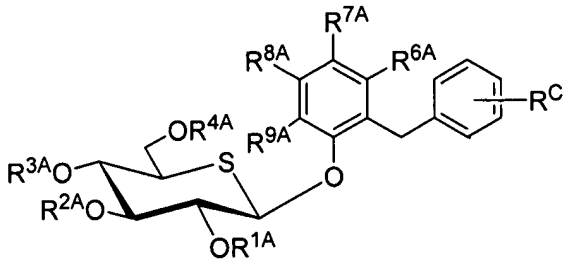
wherein m' represents an integer of 0 to 4 and Q' represents a formyl group, an amino group, a nitro group, a cyano group, a carboxyl group, a sulfonic acid group, a C_{1-6} alkoxy group which may be substituted with 1 to 4 halogen atoms, a C_{1-6} alkoxy-C_{1-6} alkoxy group, a C_{2-10} acyloxy group, a C_{2-10} acyl group, a C_{2-6} alkoxycarbonyl group, a C_{1-6} alkylthio group, a C_{1-6} alkylsulfinyl group, a C_{1-6} alkylsulfonyl group, -NHC(=O)H, a C_{2-10} acylamino group, a C_{1-6} alkylsulfonylamino group, a C_{1-6} alkylamino group, an N,N-di(C_{1-6} alkyl)amino group, a carbamoyl group, an N-(C_{1-6} alkyl)aminocarbonyl group, or an N,N-di(C_{1-6} alkyl)aminocarbonyl group; or

a C_{3-7} cycloalkyl group, a C_{3-7} cycloalkyloxy group, an aryl group, a C_{7-10} aralkyl group, an aryloxy group, a C_{7-10} aralkyloxy group, a C_{7-10} aralkylamino group, a heteroaryl group, or a 4- to 6-membered heterocycloalkyl group, provided that each of these groups may be substituted with 1 to 4 substituents selected from the group consisting of a halogen atom, a hydroxyl group, a C_{1-6} alkyl group and a C_{1-6} alkoxy group.

8. (original): The 5-thio-β-D-glucopyranoside compound according to claim 7, wherein X is $-CH_2-$, or a pharmaceutically acceptable salt thereof or a hydrate thereof.

9. (original): The 5-thio-β-D-glucopyranoside compound according to claim 7, wherein X is -O- or -NH-, or a pharmaceutically acceptable salt thereof or a hydrate thereof.

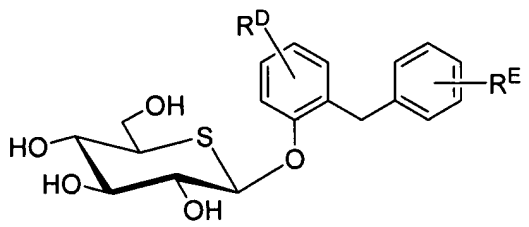
10. (previously presented): A 5-thio-β-D-glucopyranoside compound of the following formula or a pharmaceutically acceptable salt thereof:



(A)

wherein R^{6A} to R^{9A}, which may be the same or different, each represent a hydrogen atom, a halogen atom, a C_{1-6} alkyl group, a C_{1-6} alkoxy group, a C_{1-6} alkoxy-C_{1-6} alkoxy group, a carboxyl group, a C_{2-6} alkoxycarbonyl group, a hydroxyl group or a hydroxy-C_{1-4} alkyl group, R^C represents a hydrogen atom, a halogen atom, a C_{1-6} alkyl group, a C_{1-6} alkoxy group, a hydroxy-C_{1-4} alkyl group, a halogen-substituted C_{1-6} alkyl group or a C_{1-6} alkylthio group, R^{4A} represents a hydrogen atom, a C_{2-6} alkoxycarbonyl group or a C_{2-6} alkanoyl group, and R^{1A} to R^{3A}, which may be the same or different, each represent a hydrogen atom, a C_{2-8} alkanoyl group or a benzoyl group.

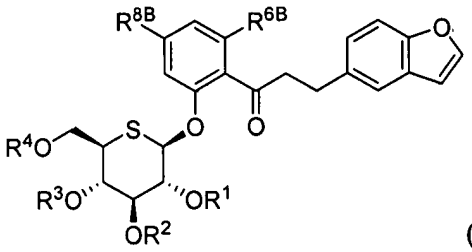
11. (previously presented): A 5-thio-β-D-glucopyranoside compound of the following formula or a pharmaceutically acceptable salt thereof:



(B)

wherein R^D represents a hydrogen atom, a halogen atom, a C_{1-6} alkyl group or a hydroxy-C_{1-4} alkyl group, and R^E represents a hydrogen atom, a halogen atom, a C_{1-6} alkyl group, a C_{1-6} alkoxy group or a hydroxy-C_{1-4} alkyl group.

12. (previously presented): A 5-thio-β-D-glucopyranoside compound of the following formula or a pharmaceutically acceptable salt thereof or a hydrate thereof:



(C)

wherein R^1, R^2, R^3 and R^4, which may be the same or different, each represent a hydrogen atom, a C_{2-10} acyl group, a C_{7-10} aralkyl group, a C_{2-6} alkoxycarbonyl group, a C_{1-6} alkoxy-C_{2-10} acyl group or a C_{1-6} alkoxy-C_{2-6} alkoxycarbonyl group, R^{6B} represents a hydrogen atom, a halogen atom, a hydroxyl group, a C_{2-10} acyloxy group, or a C_{1-6} alkyl or C_{1-6} alkoxy group which may be substituted with 1 to 4 halogen atoms, and R^{8B} represents a hydrogen atom, a halogen atom or a C_{1-6} alkyl group which may be substituted with 1 to 4 halogen atoms.

13. (original): A pharmaceutical preparation, which comprises the 5-thio-β-D-glucopyranoside compound according to any one of claims 1 to 12 or a pharmaceutically acceptable salt thereof or a hydrate thereof as an active ingredient.

14. (previously presented): A method of treating a condition treatable by inhibiting sodium-dependent glucose transporter 2 activity said method comprising administering to a subject in need of treatment a pharmaceutically effective amount of the 5-thio-β-D-

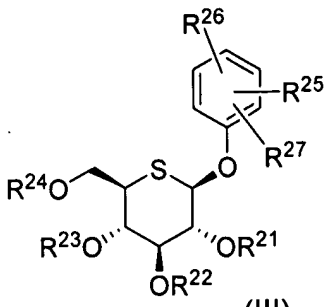
glucopyranoside compound according to claim 1, a pharmaceutically acceptable salt thereof or a hydrate thereof.

15. (original): The method according to claim 14, wherein the condition is diabetes, diabetes-related diseases or diabetic complications.

16. (original): A pharmaceutical preparation, which comprises the 5-thio-β-D-glucopyranoside compound according to any one of claims 1 to 12 or a pharmaceutically acceptable salt thereof or a hydrate thereof, in combination with at least one drug selected from the group consisting of an insulin sensitizer selected from the group consisting of a PPARγ agonist; a PPARα/γ agonist; a PPARδ agonist; and a PPARα/γ/δ agonist, a glycosidase inhibitor, a biguanide, an insulin secretagogue, an insulin formulation and a dipeptidyl peptidase IV inhibitor.

17. (original): A pharmaceutical preparation, which comprises the 5-thio-β-D-glucopyranoside compound according to any one of claims 1 to 12 or a pharmaceutically acceptable salt thereof or a hydrate thereof, in combination with at least one drug selected from the group consisting of a hydroxymethylglutaryl coenzyme A reductase inhibitor, a fibrate, a squalene synthase inhibitor, an acyl-coenzyme A:cholesterol acyltransferase inhibitor, a low-density lipoprotein receptor promoter, a microsomal triglyceride transfer protein inhibitor and an anorectic.

18. (currently amended): A 5-thio-β-D-glucopyranoside compound of the following formula or a pharmaceutically acceptable salt thereof or a hydrate thereof:



(III)

wherein

R^{21}, R^{22}, R^{23} and R^{24}, which may be the same or different, each represent a hydrogen atom or a C_{2-10} acyl group,

R^{25} represents an amino group, a C_{2-6} alkanoyl group, a carboxyl group, a formyl group, a C_{2-6} alkoxycarbonyl group or a hydroxyl group, and

R^{26} and R^{27}, which may be the same or different, each represent a hydrogen atom, a halogen atom, a hydroxyl group, a C_{1-6} alkyl group which may be substituted with 1 to 4 substituents selected from the group consisting of a halogen atom and a hydroxyl group, or a C_{1-6} alkoxy group which may be substituted with 1 to 4 halogen atoms.